

CLAIMS

1. A hand-portable electronic device comprising:
a memory for storing a security word as a predetermined sequence
5 of characters;
a rotator, having a tactile surface arranged for tactile actuation by a user, and
mounted for rotation about an axis;
feedback means separate from the rotator for providing feedback to a user as
the rotator is rotated;
10 conversion means for converting each rotation of a sequence of rotations of
the rotator into a character of a corresponding ordered test sequence of
characters; and
verification means for verifying the test sequence of characters against the
predetermined sequence of characters.
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2. A hand-portable electronic device as claimed in claim 1, wherein the
conversion means is arranged to quantise the extent of rotation of the rotator
to one of a discrete set of quantised values.
- 20 3. A hand-portable electronic device as claimed in claim 2, wherein the
feedback means is responsive to each variation of a quantised value during a
rotation to provide feedback to the user indicative of a variation in the
quantised value.
- 25 3. A hand-portable electronic device as claimed in claim 2, wherein the
feedback means is responsive to each variation of a quantised value during a
rotation to provide feedback to the user indicative of the quantised value.
- 30 4. A hand-portable electronic device as claimed in claim 2, wherein the
quantised value at the termination of a rotation corresponds to a character of
the test sequence.

5 5. A hand-portable electronic device as claimed in claim 1, wherein the feedback means is an output device.

6. A hand-portable electronic device as claimed in claim 5, wherein the feedback means is an audio output device

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7. A hand-portable electronic device as claimed in claim 6, wherein the audio output device provides a first audible output for each predetermined gradation of rotation of the rotator

15 8. A hand-portable electronic device as claimed in claim 7, wherein the first audible output emulates the 'click' heard on rotating a safe dial.

9. A hand-portable electronic device as claimed in claim 6, wherein the audio output device provides a second audible output on correct verification of the test sequence of characters against the predetermined sequence of characters.

10. A hand-portable electronic device as claimed in claim 9, wherein the second audible output emulates the sound of safe door opening.

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11. A hand-portable electronic device as claimed in claim 5, wherein the feedback means comprises a display.

12. A hand-portable electronic device as claimed in claim 11, wherein the feedback means varies a displayed character as the rotator is rotated.

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13. A hand-portable electronic device as claimed in claim 12, wherein the value of the displayed character increases as the rotator is rotated in a first direction of rotation and value of the displayed character decreases as the rotator is rotated in a second opposite direction of rotation.

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14. A hand-portable electronic device as claimed in claim 11, wherein the display is arranged to display each of the characters in the ordered test sequence of characters.

10 15. A hand-portable electronic device as claimed in claim 1, wherein the feedback means comprises a display for displaying a representation of at least a safe dial.

15 16. A hand-portable electronic device as claimed in claim 15, wherein the displayed safe dial rotates as the rotator is rotated.

20 17. A hand-portable electronic device as claimed in claim 16, wherein the display is arranged to display a safe door opening on the correct verification of the test sequence of characters against the predetermined sequence of characters.

25 18. A hand-portable electronic device as claimed in claim 1, wherein the rotator has an upper tactile surface corresponding to the rotator tactile surface and wherein the rotator is mounted for rotation about an axis substantially perpendicular to said upper tactile surface in response to tactile actuation by a user.

30 19. A hand-portable electronic device as claimed in claim 1, wherein the electronic device has a front face and the rotator has an upper tactile surface corresponding to the rotator tactile surface and wherein the rotator is mounted for rotation about an axis substantially perpendicular to the front face of the electronic device in response to tactile actuation by a user.

20. A hand-portable electronic device as claimed in claim 1, wherein the rotator is disk-like having a substantially circular, flat, non-curved upper tactile surface.

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21. A hand-portable electronic device as claimed in claim 20, wherein a downwardly depending curved edge to the substantially circular upper tactile surface of the disc-like rotator is substantially inaccessible.

10 22. A hand-portable electronic device as claimed in claim 1, wherein the rotator is for data entry.

23. A security method for a hand-portable electronic device comprising a rotator, the method comprising:

15 a user making an ordered sequence of rotations of the rotator;
providing at the device, separately from the rotator, feedback to the user as the rotator is rotated during the ordered sequence of rotations; and
verifying whether the ordered sequence of rotations made by the user corresponds to a predetermined ordered sequence of rotations.

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24. A security method as claimed in claim 23, wherein when the device provides feedback to the user it provides electrically amplified audio output to the user.

25 25. A security method as claimed in claim 23, further comprising quantising the rotational position of the rotator to one of a discrete set of quantised values.

26. A security method as claimed in claim 23, further comprising providing at
30 the device, separately from the rotator, feedback to the user indicative of a variation in the quantised value.

27. A security method as claimed in claim 23, further comprising providing at the device, separately from the rotator, feedback to the user indicative of the quantised value.

5 28. A security method as claimed in claim 23, the device provides, separately from the rotator, feedback to the user as the rotator is rotated through each one of a discrete set of predetermined rotation values.

29. A hand-portable electronic device comprising:

10 a rotator, having a tactile surface arranged for tactile actuation by a user, and mounted for rotation about an axis;

feedback means separate from the rotator for providing feedback to a user as the rotator is rotated; and

15 conversion means for converting each rotation of a sequence of rotations of the rotator into a character of a corresponding ordered test sequence of characters, wherein the ordered test sequence of characters is for verification against a predetermined sequence of characters.

20 30. An electronic device or security method substantially as hereinbefore described with reference to and/or as shown in the accompanying